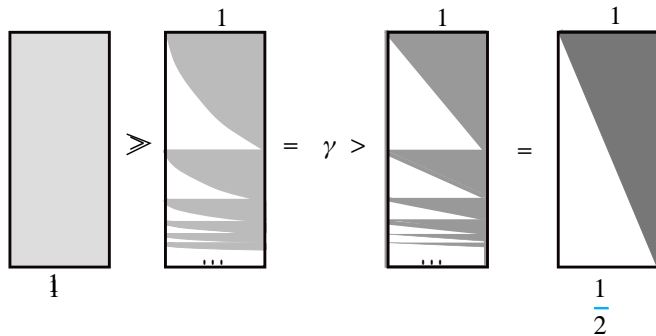
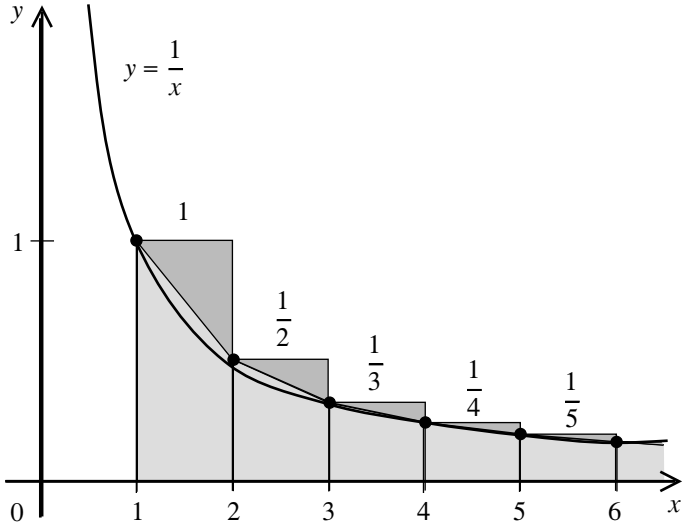


### 109.04 Bounds for the Euler-Mascheroni constant

Let  $H_n$  be the  $n$ -th harmonic number  $H_n = \sum_{k=1}^n \frac{1}{k}$ . The Euler-Mascheroni constant is defined as  $\gamma = \lim_{n \rightarrow \infty} (H_n - \ln n)$ .

*Proposition:*  $\frac{1}{2} < \gamma < 1$

*Proof:* A visual proof follows, since  $\ln n = \int_1^n \frac{1}{x} dx$



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